The Ecosystem Strategy: Disruptive Business Model Innovation

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Abstract

The fourth industrial revolution has long since begun and is leading to an economic reorganization with significant changes for organizations, leadership, and society. With increasing global competition, established companies would be forced out of the market if they do not collaborate with agile innovators from outside their industries. This article contains instructions on how existing and disruptive business models can be combined with an ecosystem strategy and used as an opportunity. Case examples and practical models guide managers to identify and evaluate ecosystem strategies to generate new added value for the next generation of customers.

Keywords: Business ecosystem, innovation, open innovation, business model, disruption, allocentric, digitalization, value constellation, network, hyperconnectivity, financial sector

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Business does not last forever. Since Schumpeter, we know that a process of creative destruction precedes every economic development.[2] In this transformation, new structures and combinations of production factors are created that are necessary to trigger further innovation. Business models follow different rules than in the last century, and disruption is often misunderstood. Gradual improvements and small upgrades to products and services that already exist in an established market are not disruptive but incremental. Incremental innovation is a strategy that supports companies maintain their competitive position over time, though, it rarely increases market share. Handling existing processes digitally merely increases efficiency. Even

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[2] Schumpeter, J.A.: Capitalism, socialism and democracy. Harper, New York, 1975 (orig. pub. 1942).

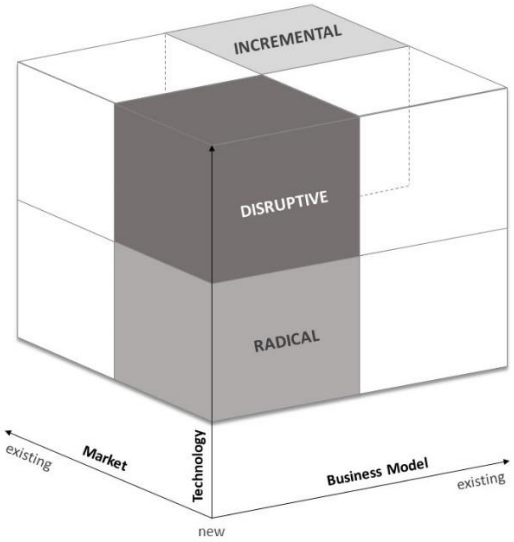
radical innovations that completely change markets, technologies, customers, and business models are not disruptive. There is confusion in the literature and especially among practitioners about disruption. That is why Clayton Christensen, Professor at Harvard Business School, clarified the term 20 years after presenting his seminal theory on disruptive innovations.[3] Accordingly, disruptive innovation is a process through which a product or service that was initially a simple application on the lowest stage of the market, rises in the market, and finally replaces established products of competitors.

Since 2011, driven by increasing interconnectedness and the Internet of Things (IoT), we have been on the way to the fourth industrial revolution.[4] The digital transformation controls the organizational change measures in terms of structure and processes and contains disruptive elements regarding the way customers are served and how money will be earned in the future. Technology is key and must be deployed explicitly in order to achieve the overall goal – to serve the market and customers. Those who become obsessed with developing new technology tend to fail because they miss addressing individual customer needs. Some even lose their customers on their journey of continuous innovation, since customers are happy with the status quo. Ergo, they do neither wish more features nor complimentary services.

To classify and illustrate radical, incremental, and disruptive innovation, we utilize the innovation cube (see figure 1).[5] This model includes categories like market, technology, and business model. Though we could theoretically describe 24 shades of innovation, we focus on three. The x-axis shows the impact of innovation on the market, whether it creates a new or facilitates an underserved market or serves an established market. The y-axis stands for the technological progress an innovation brings with it, and by moving from new up on the vertical dimension, it shows how innovation is harnessing technology as such. The z-axis indicates to what degree the innovation shapes the business model; in other words, if the business model, including capabilities, products, and services, is new or existing.

[3] Christensen, C., Raynor, M., McDonald, R.: What is Disruptive Innovation. Harvard Business Review, 93, December 2015, p. 44–53.
[4] Kagermann, H., Lukas, W. D., Wahlster, W.: Industrie 4.0: Mit dem Internet der Dinge auf dem Weg zur 4. industriellen Revolution. VDI Nachrichten, Ausgabe 13, 1 April 2011.
[5] Fasnacht, D.: Open Innovation Ecosystems: Creating New Value Constellations in the Financial Services. Springer, Cham, 2018, p. 133.

Figure 1 Innovation cube



Innovation	Market	Business Model	Technology
INCREMENTAL	existing	existing	existing
DISRUPTIVE	new	new	existing
RADICAL	new	new	new

The benefit of viewing different innovation approaches along three dimensions is firstly to reduce complexity and secondly to plot relevant trajectories of innovation to guide strategic initiatives better. While incremental innovation is opposed to radical innovation, the innovation cube makes it also clear, that disruptive innovations can create new business models and develop new markets, but build on existing technologies. Each innovation type has a different impact on the broader environment of an organization. Implications related to finance, clients and markets, competition, and time are summarized in table 1. The consulting firm Accenture has compiled a *Disruptability Index*, which measures the vulnerability of established companies and entire industries.[6] Accordingly, almost two-thirds of the companies investigated are affected by the disruption, which in many cases, impairs their future viability.

[6] Accenture Research: Disruptability Index 2.0. [online 20 June 2020] www.accenture.com/us-en/insights/consulting/business-disruption-innovation

Table 1 Impact on the various types of innovation

Innovation types	Impact			
	Finance	**Client and Market**	**Competition**	**Time**
INCREMENTAL	▪ Short-term revenues ▪ Efficiency gains ▪ Cost reduction	▪ Improves existing products and services ▪ Improves operational processes ▪ Improves the customer experience	▪ Keeps business competitive to remain in the game ▪ Transparent implementation and execution ▪ Easy to copy designs	▪ Continuous activity
DISRUPTIVE	▪ High investments ▪ Financial risks ▪ Involvement of venture capital/private equity	▪ Creates value where none existed ▪ Changes the client's journey ▪ Starts with untapped client segments	▪ Hard to copy business models ▪ Competitive advantage	▪ Next business cycle
RADICAL	▪ High investments (re-capitalization) ▪ Takes time to pay back ▪ Resource deployment	▪ Replaces existing business models ▪ Offers a new value proposition ▪ Transforms industries and social behavior	▪ Consolidation ▪ Rendering competition obsolete	▪ Next generation

The speed and complexity of changes

Competitors from outside the industry, new market players from Asia, demographic changes, new customer needs, regulatory requirements, technological innovations, among other trends, must be understood and incorporated into corporate strategies. As all these forces interact, they determine the new rules of the game in international competition and lead to increasing complexity. Many business leaders have difficulty finding their way in this so-called VUCA world (volatility, uncertainty, complexity, ambiguity). They lack resilience, agility, and empathy, and they have neither the knowledge nor the capacity to serve various trends alongside their core business and to develop and introduce new business models with global partners. Disruption is a consequence of technological innovations, and we assume that this effect triggers disruptive business model innovation. How the logic of value creation changes in this new paradigm is explained in this paper using practical examples.

Example: Financial sector

Digitization is the prerequisite for new business models and will cause a structural change in several sectors in the coming years. According to studies and the Disruptability Index, the en-

ergy and financial sectors will be most affected by the structural change brought about by digitization in the coming years. Within the financial sector retail banking, and here payment transactions will be most affected, followed by investment advice, lending, and asset management.[7] Financial institutions lag behind other industries when it comes to digital innovations. Open innovation in financial services requires business model innovation to make externally sourced ideas and services financially attractive to third parties. Today the customer acts as co-innovator; hence, resources and dynamic capabilities must be redeployed to create and capture value. Although growth strategies that link openness, flexibility, and customer integration have been introduced before the financial crisis,[8] it is just recently that they have gained popularity and made their way to the executive transition agenda. Established banks are coming under increasing pressure as previous strategies for success suddenly prove to be weaknesses, and more and more competitors from outside the sector (non-banks, fintech), but also competitors from other regions, are threatening their market position.

What is unusual is that in the current reorganization, the global dominance of the West and its freedom of economic action under US domination is disintegrating. Because firms are not agile and flexible enough, they discover many innovations too late. Innovation and growth increasingly come from emerging and developing markets. While in Europe, many consumers are showing interest in digital banking solutions, in Asia, most customers are already using mobile solutions for private and business purposes, provided by innovative fintechs. Since convenience and time savings are the most significant advantages of digital payment solutions, this is where we need to start. Traditional payment models should be replaced quickly. Otherwise, a whole generation of consumers will switch to providers with mobile solutions. New customers cannot be won over without payment apps that are ergonomically designed, easy to use, and accessible to customers from anywhere. The bank of the future may most likely be an app.[9]

The ecosystem can help

Classic management concepts and the value chain, according to Michael E. Porter, are hardly useful today.[10] These approaches put the own organization and its supply chain exclusively at

[7] Schwaller, P., Toepfer, O., D'Ambrosio, T.: EY Bankenbarometer 2019. www.ey.com, https://tinyurl.com/vvjsjrj [online 20 February 2020]; Deloitte: EMEA Digital Banking Maturity 2018. www2.deloitte.com, https://tinyurl.com/te6cva8 [online 20 February 2020].
[8] Fasnacht, D.: Open Innovation in the Financial Services. Springer, Heidelberg, 2009.
[9] Fasnacht, D.: Banking 4.0: Ecosystems and Super-Apps. In: Wendt, K. (ed), Theories of Change, Sustainable Finance Series, Palgrave MacMillan, 2020 (forthcoming).
[10] Porter, M. E.: Competitive Strategy. New York, 1980.

the center of all considerations and divided production and sales into vertical value-adding chains. Products were pushed to the consumers without interaction and feedback loops during the development as well as commercialization process. Today, we no longer have clearly defined company boundaries and stable conditions. Increasing global networking and disintegration means that new and non-industry competitors are breaking down existing value chains into their constituent parts and getting involved in the process via open interfaces (OpenAPIs). In the digital age, value creation is split up and mapped within different market participants. Thus, new forms of cooperation are continuously combined with forms of competition. Ecosystems use the resources of all involved actors - including competitors - and bundle them for their success. With WeChat, Tencent operates a super app that covers all areas of life with various mini-programs. The Chinese holding company even allows its biggest competitor Alipay to offer payment services. It is all about finding the right partners and, above all, defining a capable value-added architecture by involving suppliers and customers more closely. The focus of the economic activities is thus the constellation with which added value for customers can be generated dynamically and flexibly across company boundaries.

Today's ecosystems grew around a dominant enterprise, which controlled and orchestrated the prices and quantities of services offered by all other actors. Increasing networking activities of the market participants motivate other startups to supply value-added services, which in turn generates value for the orchestrator. Therefore, it is advisable to consider the interests of all actors of an ecosystem when building the business model. In the psychology of perception, we speak in this context of an *allocentric* view, which means "centered in something else."[11] This new approach is in contrast to an *idiocentric* or *egocentric* view that primarily focuses on one's own needs, concerns, and outcomes rather than those of others, referring to archaic management practices. The organizational and performance-oriented perspective on an ecosystem is better represented in an allocentric (distributed) business model than in its predecessor, the open and closed business model.[12] We suppose that such community-based ecosystems are more robust and sustainable and better convey social values.

[11] American Dictionary of Psychology. https://dictionary.apa.org/allocentric [online 20 June 2020]
[12] Burkhalter, M.: Allocentric Business Models. Unpublished dissertation, Institute for Information Managment, University of St. Gallen, 2020.

The new value creation logic

Since the knowledge of diverse actors (collective intelligence) serves the entire system, ecosystems automatically grow through the sum of positive interactions between the participants. Corresponding to the social networking theory, the value of the system increases in proportion to the square of the number of its participants (Metcalfe's Law).[13] This effect has been validated with data from Facebook and Tencent.[14] Further, we borrowed the term *hyperconnectivity* from the social sciences that arose from studies of person-to-person and person-to-machine communication in networked organizations and networked societies.[15] We adopted the concept as one more functional characteristic that changes and preserves the ecosystem together with the network effect. We assume that the more interactions and connections evolve, the more learning occurs. Hyperconnectivity is supposed to be one lever that nurtures an innovation ecosystem.

Similarly, learning occurs in our brains. Through a network of neurons (dynamic capabilities of actors), sensory information is transmitted by synapses (innovation facilitators in the form of complementary technology partners). The world today is driven by ubiquitous computing, and will increasingly connect numerous nodes. People share and exchange goods and information and communicate everything they experience, using marketplaces within the global network. With human-machine interaction through chatbots and robots, and finally, with the Internet of Things, there will be a permanent exchange of data. As a result, we can accumulate more and more data and convert data into relevant information with the help of algorithms. Knowledge thus increases exponentially with each participant in the network. This represents the open ecosystem and is consequently essential for its change, self-regulation, preservation, and value generation. We hold that the dynamic nature of hyperconnectivity is the operational logic for all participants in an open innovation ecosystem.[16]

Functioning in the context of the digital aspects of an ecosystem is far removed from linear value chains and unilateral business relationships. We researched the dimensioning of ecosystems and state that community-oriented ecosystems arise around the daily needs of individual customers. Accordingly, an ecosystem is built around a core value proposition consisting of

[13] Metcalfe, R.: Metcalfe's Law: A network becomes more valuable as it reaches more users. Infoworld, 1995, No. 17.
[14] Zhang, X. Z./Liu J. J./Xu, Z. W.: Tencent and Facebook data validate Metcalfe's law. Journal of Computer Science and Technology, 30, 2015, No. 2, p. 246–251.
[15] Wellman, B. (2001): Physical place and cyberplace: The rise of networked individualism. Community Networks Online. 17–42; Quan-Haase, A. and Wellman, B.: Networks of Distance and Media: A Case Study of a High Tech Firm. Trust and Communities conference, Bielefeld, Germany, 2003.
[16] Ibit 5

services provided by suppliers and used by consumers. The formulation of the mutual core value proposition determines the economic, as well as functional, emotional, and symbolic benefits of an ecosystem. Value creation and value capture is thereby directed towards several actors and is characterized by digital platforms that are interrelated in multilateral value creation constellations. Platforms from Amazon, Google, Facebook, Alibaba, Baidu, or Tencent primarily provide a purpose-built organizational and transactional infrastructure. Their modules and interfaces of the platform are required for the joint creation of value between individual actors. Ecosystem business models build around a core value proposition and use digital platforms to coordinate service delivery.

Business ecosystems integrate customers and communities and, in the future, algorithms and machines into the innovation process. Customers are also part of the value creation while consuming services, regardless of where they are located and when they access a touchpoint in their customer journey. The so-called "prosumer" – a term coined by futurologist Alvin Toffler in the 1980s, is both consumer and producer in this context and, as a co-innovator, a vital partner in the ecosystem.[17] Transparency, exchange of information, networking, and permanent interactions are regarded as prerequisites for the functioning of this new form of collaboration. All this happens without a break, daily 24 hours, seven days a week. It is like in nature: when an ecosystem comes to a standstill, it dies. Ecosystems never sleep!

Following the question "What is new about business ecosystems?", we found that unlike innovation clusters, with its self-reinforcing effects through regional and social proximity, business ecosystems are characterized by digital aspects. The value creation logic of a business ecosystem includes four key factors, *i.e.*:

1) Sharing: consumption behavior based on accessing and reusing products and services instead of ownership of resources and assets
2) Information exchange: platforms that foster an open approach to globally sharing and distributing knowledge
3) Digital marketplace: cross-sector marketplaces facilitate shopping from many different sources
4) Interconnectedness: networking of physical and virtual objects, including things (IoT), all interconnected through smart sensors, exchanging data using the internet

[17] Toffler, A.: The third wave: The classic study of tomorrow. New York, Bantam, 1980.

The advances in technological innovations increase the significance of the various interrelations between technology, knowledge, and innovation in economic activity. Digitalization fosters connection, integration, and interdependencies of systems, mobile devices, and many other things. As everything is digital and interconnected, the increasing convergence creates value and, on the other hand, leads to disintermediation and calls for new business models.

Diversification through ecosystems

The last ten years have shown that firmly technology-driven companies have the highest potential for scaling. Eight of the largest ten companies by market capitalization are technology companies (Apple, Amazon, Alphabet, Microsoft, Facebook, Alibaba, Tencent, Samsung). They were quick to open up their platforms, which formed the basis for several new businesses. Google's search interface has not changed much since it was founded in 1998, but its business areas and market power have changed considerably. Today's holding company Alphabet operates a variety of businesses, such as Google Ventures, Google Capital, Google X, Google Cloud, but also apps that are better known to end-users, such as Google Maps, Google Earth, Gmail, Google Books, Google Chrome, YouTube, Google Play or Android. Thanks to research into artificial intelligence (DeepMind), Google can also play chess or Go and drive a car (Waymo). A classic case of disruptive innovation: new business models and new markets were built persistently with existing, albeit improved, technology power.

Google proves that the development of new business areas with an adequate risk balance can be achieved through partnerships. A platform business model is not only about using external knowledge and resources to develop and market solutions. At Google, unconventional perspectives and insights from external partners lead to new business models that have been subsequently materialized to serve new markets. This created new customer groups with different expectations and behavior patterns than in the traditional business. Customers no longer want individual products, but rather a solution that is flexibly tailored to their needs. The primary need is not a mortgage, but living or owning property. Firms can satisfy this need with a home loan and savings product and add auxiliary services such as insurance. Individual value propositions are created by bundling different value-adding services. The ecosystem is thus expanded horizontally across sectors, which automatically leads to diversification. Our observations confirm that platform companies not only coordinate the services in an ecosystem but often also determine them. In this way, they take over the role of orchestrators and are more likely to

become market leaders. The higher the diversification, the more powerful and valuable the ecosystem is.

Adapt strategies

There are several reasons why management is forced to adjust strategies and align their organization with the next generation of customers. We have seen in recent years that many companies have become victims of their success that paralyzes them to react appropriately to disruptors. Agility and flexibility usually clash with the strengths of an established organization. It is also a balancing act to drive innovation on the one hand, while at the same time managing the organization in an economically efficient and compliant manner. Since the financial crisis, the focus has been on the latter. Various forces simultaneously affect a company and make it difficult to deal with diverse challenges and opportunities. This new normal requires a new form of management practice and agile leadership.

To survive in global competition, managers have to generate efficiency gains while at the same time increasing the innovative power of the company and winning new customers. Openness and collaboration are relatively new approaches. Modern management is characterized by organizational ambidexterity, which means that complex change situations have to be met in parallel with several strategies to promote innovation.[18] In practice, this *ambidextrous* thinking allows the established core business to be operated, optimized with incremental improvements, and other strategic initiatives to be financed with the funds earned. Even if corporate divisions are cannibalized in this way, the ecosystem approach can hold together a body of innovation labs, think tanks, research institutes, consulting firms, and technology providers – at least until disruptive innovations decompose the traditional business.

However, a progressive strategy is of no use if the corporate culture is not aligned with this strategy. Strategy and culture influence each other. It is, therefore, essential that managers create an open culture and enable their employees to work independently in a decentralized system with distributed responsibilities. They ensure that there is a permanent exchange with the environment by all partners and that changes are directly reported back to the management team. Through good cooperation and coordination of independent organizational units, the

[18] O'Reilly, C. A. and Tushman, M. L.: The Ambidextrous Organization. Harvard Business Review, 82, 2004, 4, p. 74–81.

knowledge of internal and external stakeholders can be better used for optimization and innovation likewise.

In order to remain competitive and exploit innovation potentials, firms must coordinate innovation, collaboration, investments, and incubation and maintain the balance between flexibility and control. The following concrete measures may support the strategy development process through an ecosystem lens:

- Permanently assess the environment holistically
- Adapt mobile and digital business models for business purposes
- Replace linear value chains with dynamic value creation constellations
- Enter into partnerships with companies from outside the industry
- Adopt an allocentric view of ecosystem development
- Institutionalize agility as a management discipline on all hierarchical levels

Haier, a Chinese household appliance manufacturer on the verge of bankruptcy at the end of the 1980s, has taken this ultimate strategic flexibility to the extreme.[19] Individual employees have even been allowed to apply their strategies. The company has now become an internal ecosystem consisting of thousands of mini-companies, all of which operate independent profit centers. The network strategy has led to better customer understanding and needs-based innovation. This adaptability, also known as resilience, has made Haier one of the world's largest household appliance manufacturers.

Think openly and learn from others

Technology firms from Silicon Valey will not initiate disruptive business model innovations, nor will they come from the corporate development departments of established conglomerates. Digitization and the natural handling of artificial intelligence and robots are more advanced in Asia than is often assumed, and the development steps and product lifecycles are subject to a high frequency. Due to the high unpredictability of the political and economic environment in Asian countries, innovators there are flexible and are well versed in continually adapting to

[19] Reeves, M., Love, C., Tillmanns, P.: Your Strategy Needs a Strategy. Harvard Business Review, September 2012, https://tinyurl.com/pvy9zzv [online 20 June 2020].

consumers and local conditions. Competition from Asia is forcing traditional Western companies to embrace digital trends as an opportunity. If we do not, the potential loss for Europe could amount to a cumulative 605 Billion Euro by 2025.[20]

We should also focus more on our customers and their data and get away from product thinking and rigid organizational structures and traditional business models. Organizations must be adaptive to become part of the new value creation logic within an open innovation ecosystem. In this way, innovative solutions for customers can be developed more quickly and distributed through various channels. This agility determines who can quickly and profitably enter new markets in the future.

If the organizational culture is not ready, some business units afraid of losing control or managers just unable to coordinate a network of independent players; we suggest evaluating at least a collaboration with a relevant player outside the firm's traditional business. Because much can be learned from others and with outside-the-box-thinking.

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[20] Roland Berger: Die digitale Transformation der Industrie. Im Auftrag des Bundesverbandes der Deutschen Industrie, 2015, https://bdi.eu/media/presse/publikationen/information-und-telekommunikation/Digitale_Transformation.pdf, [online 20 June 2020].